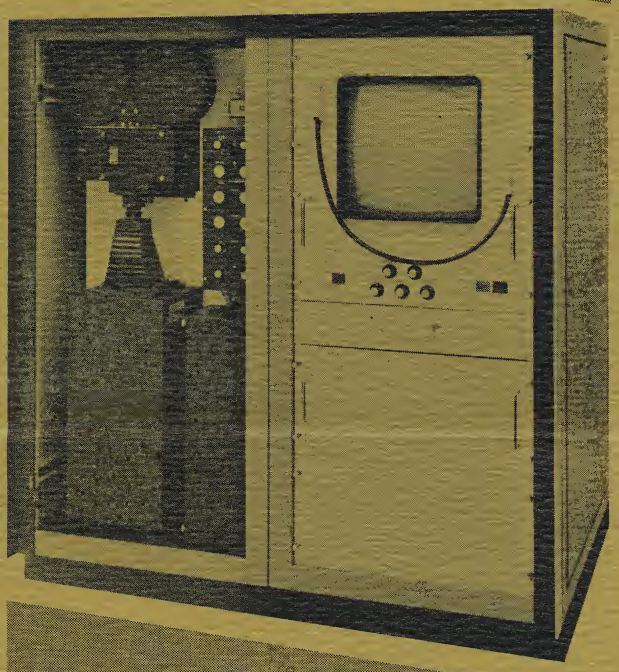
STRAZA INDUSTRIES



MODEL 1311 DISPLAY/RECORDER

THE STRAZA MODEL 1311 DISPLAY/RECORDER is a nonmechanical graphic plotter and alphanumeric recorder. It operates on-line from a computer, or off-line from a tape unit (or both) to produce a visual display or a microfilm record. Cathode ray tubes, a symbol generator, a line/vector generator, logic circuitry, and a microfilm camera provide the display and recording capability.

Data from more than one type of computer and/or tape unit may be recorded (and/or displayed). Excellent quality photographic recordings of alphanumeric symbols, vectors, and line output can be recorded directly onto 16mm or 35mm microfilm. A series of images can be displayed or recorded in rapid succession to create the impression of motion, growth or progression, as in wave fronts. The possibilities are practically unlimited (see list of optional equipment).

The Model 1311 operates by receiving digital positioning and selecting signals from the computer or tape unit, converting them into two sets of analog voltages. One set of signals causes the electron beams of two cathode ray tubes to be positioned horizontally and vertically on the faces of the tubes. The other set causes an electronically generated alphanumeric symbol to appear at the selected location.

The computer can direct the Model 1311 to operate in either a plot mode or a print mode. In the plot mode, symbols or plotting dots can be located at any position selected within the format. In the print mode, an X or Y increment bit in the symbol word causes the beam to step one symbol space to the right or one line space down without the need for specifying X and Y coordinates.

STANDARD FEATURES

- 35mm Camera
- Manual Image Rotation
- Standard Character Set
- BCD or Binary Input Coding
- On-Line and/or Off-Line Operation

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MODEL 1311

DISPLAY

Visual display on a 16-inch cathode ray tube is a feature of Model 1311. In the display mode, data is presented on the tube so that the programmer can use a light pen to edit and correct errors in a real time manner. This capability saves valuable time in searching and updating computer programs. The Model 1311 can also be supplied as a microfilm printer system without the display feature.

SYMBOL GENERATOR

The symbol generator is a completely self-contained unit capable of electronically generating 63 alphanumeric symbols. The symbols are of modular construction and are located on three plug-in symbol cards that can be modified or interchanged as required. Nonstandard symbols can be supplied to customer requirements.

LINE/VECTOR GENERATOR

The line/vector generator can generate lines in any direction and of any length within the format area. Optional logic can be supplied to enable line generation in any direction from the stop point of the preceding line, thus minimizing computer time and increasing throughput.

LIGHT PEN

The light pen senses the short persistent light on the display tube and initiates an interrupt signal to the computer. The light pen can be programmed to enable deletion or changing of symbols, words, lines, and dots, providing full editorial control over the displayed material.

IMAGE ROTATION

The image can be rotated manually (automatic rotation is an option) in 90-degree increments.

FORMS PROJECTOR

The forms projector allows permanent data, produced on a glass slide, to be superimposed on the variable data generated by the computer. The glass slide is inserted into the forms projector by the operator. A form image can be superimposed manually, by program control, or automatically with each frame advance. A control on the forms projector allows the operator to vary the intensity of the superimposed form image.

THROUGHPUT

With an input data rate of 62,500 symbols per second and an output format comprising 132 symbols per line by 64 lines, the throughput of the Model 1311 is four frames per second.

PLOT MODE FORMAT

In the plot mode, data may be recorded on a binary format of 1024 horizontal positions by 1024 vertical positions, or 1320 by 1360 respectively in a BCD format. A point may be plotted in any of the more than one million positions.

PRINT MODE FORMAT

In the print mode, line lengths up to 132 symbols and up to 64 lines per frame may be obtained. If desired, carriage returns may occur automatically after the last symbol of each line is recorded. If in BCD, special codes such as PAGE EJECT, RECORD MARK, and SINGLE SPACE may be utilized to perform special recorder operations.

SPECIFICATIONS

Weight: Approximately 700 pounds

Power Source: 105 to 125 volts, single phase, 60 Hz

Power Consumption: Less than 1400 watts

Operating Temperature Limits: 60°F to 80°F

Operating Humidity Limits: 10% to 80% relative humidity

OPTIONS

Frame Retrieval

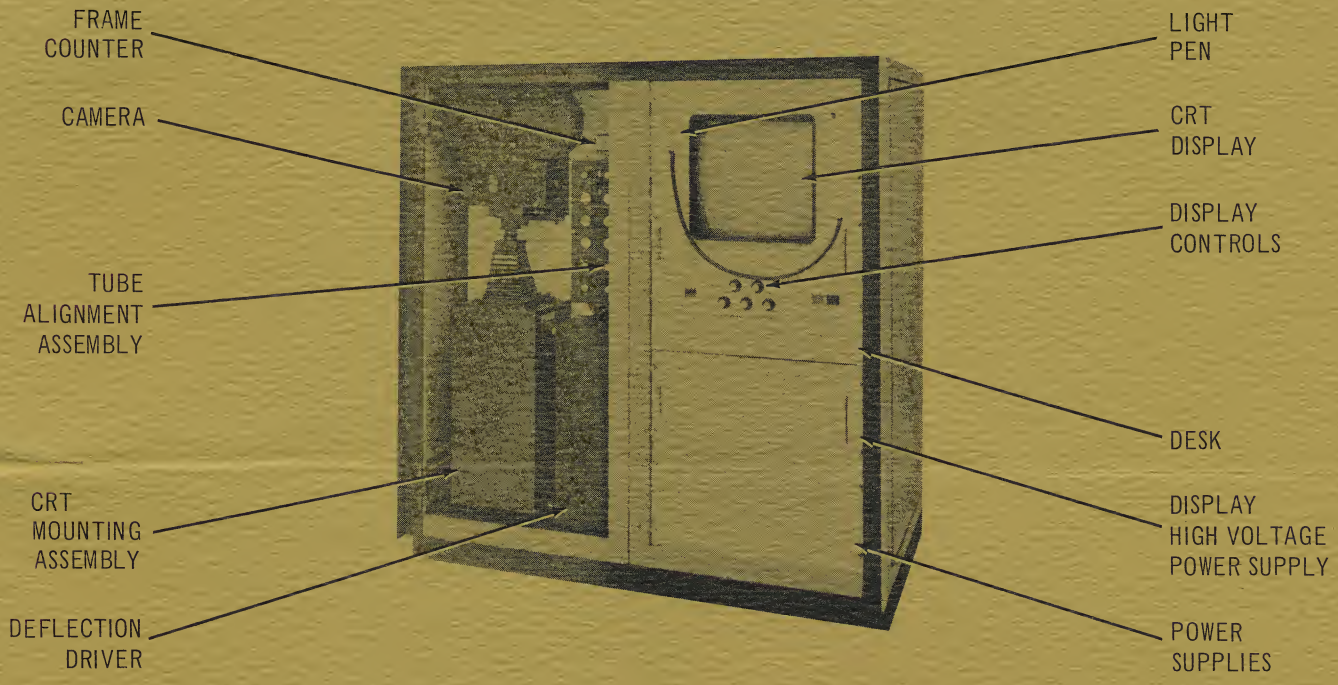
16mm Camera

Special Character Sets

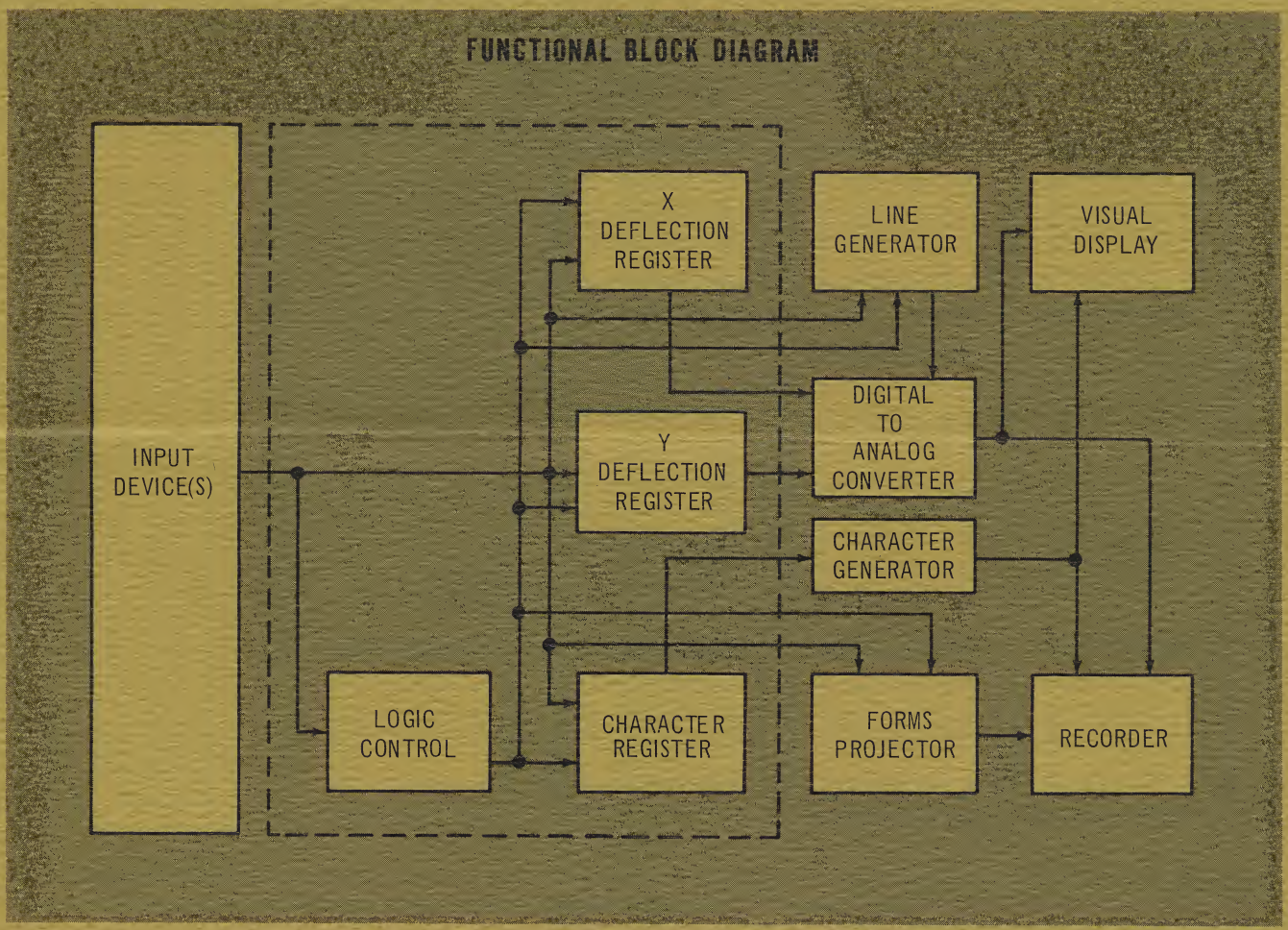
Automatic Image Rotation

Forms Projection

MODEL 1311 DISPLAY/RECORDER



FUNCTIONAL BLOCK DIAGRAM



Straza Industries is an integrated multi-product corporation supporting the aerospace and hydrospace technologies in the fields of electroacoustics, digital systems, cryogenics, and the use of exotic high-performance temperature-tolerant metals. The corporation employs approximately 600 persons at two locations in Southern California. The primary facilities are located in El Cajon, California.

In order to support the hydrospace systems programs, Straza Industries has developed a complete range of electroacoustical devices such as sonar systems, transducers, hydrophones, digital systems, transponders, marker receivers, underwater telephones, noisemakers, and test equipment. Straza capabilities also include the design and fabrication of missile and jet engine components, high-performance cryogenic ducting systems, and data handling equipment. Specialized production capabilities and facilities include three-dimensional contour milling, hydraulic bellows forming, clean rooms, and a shielded room. All facilities are available for complete design and fabrication of electronic, electromechanical, and mechanical systems to rigid specifications and schedules.

STRAZA INDUSTRIES

Electronics
Metal Components

Area Code 714-442-3451
MAIN PLANT: 790 Greenfield Drive, El Cajon, California 92021

January 3, 1967

T. Nelson
Systems Consultant
Box 1546
Poughkeepsie, New York 12603

Gentlemen:

In response to your inquiry relative to our Model 1311 Display/ Recorder, we are enclosing a data sheet and questionnaire.

We would be most appreciative if you would complete and return the questionnaire in the enclosed envelope. We are hopeful that the completed questionnaires will provide some degree of guidance relative to the most desirable operating parameters, options, etc. Upon return of the questionnaire, or upon request, we will be pleased to forward a Model 1311 Product Specification.

The first of our Model 1311s was put into operation in April 1966. Software is available for those operating from either the CDC 1604 and/or 160A computers.

Thank you for your interest in our products. We are looking forward to hearing from you.

Very truly yours,

STRAZA INDUSTRIES

H. F. Osborn

H. F. Osborn
Vice President

HFO:bg
Enclosures

SIGNAL DIVISION: 3235 Tyler Street, Carlsbad, California 92008, Area Code 714-729-2395

STRAZA INDUSTRIES

Display/Recorder Performance

We realize that the requirements that are placed on the performance of a Display/Recorder vary from installation to installation and also from application to application. It is the intention of Straza Industries to offer the computer user the most flexible equipment within the boundaries of good design practice and economy.

We are soliciting your assistance in our attempt to reach this goal by asking you to complete the following questionnaire:

1. _____ _____ _____
   Name Title Company

2. _____ _____ _____
   Address City State Zip Phone

3. Do you specify capital equipment of this type? a. _____ Yes b. _____ No c. _____ Other (Please Specify)

4. Which factor do you feel is more important when analyzing the feasibility of a microfilm recorder operation? (Please indicate by order of importance.)
   a. Operating speed-microfilm printer _____.
   b. Cost to operate _____.
   c. Type of data that is processed _____.
   d. Other _____.

5. How many dissimilar pages per day are required of your installation?
   a. Printing, pages per day _____.
   b. Plotting, pages per day _____.
   c. Both, pages per day _____.
   d. Anticipated increase
      Printing, pages per day _____.
      Plotting, pages per day _____.

6. (a) Is lease or purchase most desirable?
   a. Lease only _____.
   b. Purchase _____.

   (b) Would purchase be desirable if
   a. Cost is approximately $100,000 _____.
   b. Cost is below $70,000 _____.

7. Are you concerned with
   a. Business data processing _____.
   b. Scientific data processing _____.
   c. Both _____.
   d. Other _____.

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8. What is preferred printing format?
   a. Char/line 64, 80, 128, 132 _____.
   b. Lines/page 32, 42, 64, 68 _____.

9. Is permanent output desired on
   a. 35 mm perforated film _____.
   b. 35 mm nonperforated film _____.
   c. 16 mm perforated film _____.
   d. 16 mm nonperforated film _____.
   e. Hard copy _____.
   f. Other _____.

10. Should an automatic film processor be included as an optional subassembly?
   a. Yes, if cost is approximately $4,000 _____.
   b. Yes, if cost is approximately $2,000 _____.
   c. No _____.
   d. Other _____.

11. Is a line generator required?
   a. Yes _____.
   b. No _____.

12. When handling graphical information, what is the preferred plotting format?
   a. 1024 x 1024 _____.
   b. 1320 x 1360 _____.
   c. 2048 x 2048 _____.
   d. Other _____ x _____.

13. Is an optional display with light pen desirable?
   a. Yes _____.
   b. No _____.

14. Is an optional cursor desirable?
   a. Yes _____.
   b. No _____.

15. Do you want a keyboard?
   a. Yes _____.
   b. No _____.

Thank you very much for your cooperation; we can assure you that your effort is appreciated and that your answers will be utilized.

H. F. Osborn